

**IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF MISSISSIPPI
HATTIESBURG DIVISION**

**WAYNE AND MARY GRAVES, FOR AND ON
BEHALF OF W.A.G., A MINOR**

PLAINTIFFS

VERSUS

CIVIL ACTION NO. 2:09cv169KS-MTP

**TOYOTA MOTOR CORPORATION AND
TOYOTA MOTOR SALES, USA, INC.**

DEFENDANTS

MEMORANDUM OPINION AND ORDER

This matter is before the court on a Motion to Exclude Testimony of Martha Bidez [#131] filed on behalf of the defendants, Toyota Motor Corporation and Toyota Motor Sales, USA, Inc. ("Toyota"). The court, having reviewed the motion, the response, the briefs of counsel, the pleadings and exhibits on file and being otherwise fully advised in the premises finds that the motion is not well taken and should be denied. The court specifically finds as follows:

BACKGROUND

This is a product liability action encompassing the commonly referred to rollover and roof crush claims. The accident occurred on December 31, 2008, at approximately 8:20 a.m. on U.S. Highway 84 in Jones County, Mississippi. This single vehicle crash involved sixteen year-old W.A.G., who was operating a 1995 Toyota 4Runner traveling east. The posted speed limit was 65 miles per hour. As W.A.G. approached the intersection of Highway 84 and Rose Lane, the physical evidence and eyewitness

testimony establish that W.A.G. steered his vehicle to the left and that the vehicle began to yaw and then roll over multiple times. Although W.A.G. was wearing his seat belt and remained inside the vehicle during the rollover, as a result of the rollover and roof crush, W.A.G. was rendered quadriplegic.

On August 26, 2009, the plaintiffs, Wayne and Mary Graves, for and on Behalf of W.A.G., a Minor, ("Graves") filed their Complaint against the defendants, alleging, in part, that Toyota negligently failed to design and/or manufacture the 1995 Toyota 4Runner, specifically, the roof system and its supports, to eliminate an unreasonable risk of injury to the vehicle's occupants from roof crush injury during a rollover. Graves also alleges that the 4Runner lacked sufficient handling and stability characteristics that might have prevented the rollover. As a result of claimed roof crush during the rollover sequence, Graves alleges that W.A.G. "sustained permanent and debilitating spinal cord injuries which have rendered him permanently paralyzed from the sternum to the lower extremities."

Graves seeks actual damages for: (a) medical, therapeutical and related expenses, past, present and future; (b) permanent loss of wage earning capacity; (c) physical pain and emotional suffering, past, present and future; (d) permanent disability and the resulting anguish, hardship and expense of W.A.G.'s paralysis and confinement to a wheelchair; (e) life care expenses; and, (f) other damages as permitted by law. Graves also claims entitlement to punitive damages.

On January 14, 2011, in response to this court's Amended Case Management Order, Graves designated Martha Warren Bidez, Ph.D. ("Dr. Bidez") as an expert witness to testify in this case. Dr. Bidez is a biomedical engineer and has submitted a

copy of her report and curriculum vitae. In her report, Dr. Bidez indicates that she has conducted a biomechanical reconstruction of the 1995 Toyota 4Runner rollover which resulted in the injuries to W.A.G. The case-specific questions evaluated within her biomechanical reconstruction were as follows:

- a. What was the nature of the specific injuries sustained by W.A.G. in the 1995 Toyota 4Runner?
- b. What were the occupant kinematics W.A.G. experienced during the collision event?
- c. What was the mechanism of W.A.G.'s catastrophic spinal injuries?
- d. Was W.A.G. properly restrained at the time of the rollover crash?
- e. Were the catastrophic spinal injuries sustained by W.A.G. in the rollover crash of December 31, 2008, preventable?

Prior to issuing her report, Dr. Bidez testified that she reviewed the relevant medical records, photographs, depositions and witness statements, conducted physical inspections of the subject vehicle, analyzed the results of numerous tests conducted by other experts in this case and other biomedical engineers in similar cases, conducted a surrogate study, and determined that, to a reasonable degree of certainty, it is her opinion as a professional biomedical engineer that "the design of the 1995 Toyota 4Runner's occupant protection system, in general, and the roof structure, in particular as described by the automotive design engineer in this case, was a substantial factor in causing [W.A.G.'s] spinal cord injuries and paralysis." As a result of her investigation and analysis, she drew the following conclusions:

- a. W.A.G., the driver of the 1995 Toyota 4Runner, was restrained by the vehicle's lap-shoulder belt at the beginning of the collision event.

- b. The occupant protection system utilized by W.A.G. failed to safely restrain him within the 4Runner's occupant survival space during a foreseeable crash.
- c. W.A.G. would have survived the rollover collision of December 31, 2008 with only minor to moderate (MAIS 1-2) injuries, had his occupant protection system functioned properly.
- d. The 1995 Toyota 4Runner failed to provide reasonable protection to a restrained driver in a reasonably foreseeable rollover crash.

On March 22, 2011, Dr. Bidez's deposition was taken by Toyota, at which time she explained and offered additional support for her opinions in this matter.

Subsequently, on June 13, 2011, Toyota filed the present Motion to exclude the expert testimony of Dr. Bidez, claiming that her testimony does not satisfy the reliability requirement of *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 592 (1993) and other post-*Daubert* cases. Toyota contends that Dr. Bidez's opinions are not based on sufficient facts or data, and her testimony is not the product of reliable methods and principles reliably applied to the facts of this case contrary to the dictates of FRE 702. More specifically, Toyota argues that Dr. Bidez's opinions regarding the design of the seat belt buckle in the subject vehicle are unsupported by sufficient testing, evaluation or analysis and that Dr. Bidez's injury causation opinions are incomplete and flawed, and must be excluded.

ADMISSIBILITY OF EXPERT TESTIMONY

Since the Supreme Court's decision in *Daubert v. Merrill Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed 2d 469 (1993), federal courts have heeded the admonition set forth therein that they should take seriously their role as

“gatekeepers” of testimony offered by expert witnesses in federal courts. The initial reaction to *Daubert* was that it was a victory for the *Daubert* plaintiffs in that it vacated a Ninth Circuit opinion which upheld the exclusion of the plaintiff’s experts in one round of the Bendectin birth defect cases. The Supreme Court in *Daubert* said the *Frye* general acceptance test for expert testimony had been superseded by Rule 702 of the Federal Rules of Evidence which went into effect in 1975. Rule 702 provided at the time:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

A primary requisite of the rule was that the evidence or testimony “assist the trier of fact to understand the evidence or determine a fact in issue.” The commentators universally agree that the effect of *Daubert* was not the loosening of the allowance of expert testimony but in fact a tightening thereof. In fact when *Daubert* was vacated and remanded to the Ninth Circuit, the Ninth Circuit again upheld the district court’s exclusion of the plaintiff’s expert witnesses based on the new standard enunciated in *Daubert*. *Wm. Daubert, et al v. Merrell Dow Pharmaceuticals, Inc.*, 43 F. 3d 1311 (9th Cir. 1995). Thereafter the United States Supreme Court denied certiorari. *Daubert, et al v. Merrell Dow Pharmaceuticals, Inc.*, 516 U.S. 869, 116 S.Ct. 189, 133 L.Ed.2d 126 (1995).

The cases and commentaries interpreting *Daubert* are legion at this point. The Supreme Court in *Daubert* enumerated several factors to be considered by the trial court in determining whether or not a particular expert witness’s testimony was relevant

and reliable to the point that it should be allowed in federal court. Those factors are not exclusive and were merely presented as a guideline. The federal courts were instructed that the *Daubert* standard is “a flexible one” to be applied according to the facts and circumstances of each individual case. 509 U.S. at 594.

After *Daubert*, there was much discussion as to whether or not it applied merely to cases involving scientific knowledge or whether it should be expanded to include all expert testimony regardless of its scientific basis. The Supreme Court answered that question in *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 119 S. Ct. 1167, 143 L.Ed.2d 238 (1999). The *Kumho* court held

We conclude that *Daubert*’s general holding--setting forth the trial judge’s general “gatekeeping” obligation--applies not only to testimony based on “scientific” knowledge, but also to testimony based on “technical” and “other specialized” knowledge.

119 S. Ct. at 1171. Ultimately “the objective of that [gatekeeping] requirement is to insure the reliability and relevancy of expert testimony.” *Id.* at 1176. In *Kumho* “the relevant issue was whether the expert could reliably determine the cause of [the] tire’s separation.” *Id.* at 1177. This court has been instructed by *Kumho*, interpreting *Daubert*, that the opinions stated by Dr. Bidez are not the only objects of the relevancy and reliability determination. Indeed, the court is also required to determine the reliability of her basis for arriving at those conclusions and opinions. 119 S.Ct. at 1177.

The factors set forth in *Daubert* and recited in *Kumho* include whether the theory or technique can be and has been tested; whether or not it has been subjected to peer review and publication; whether, in respect to a particular technique, there is a high

known or potential rate of error; whether there are standards controlling the technique's operation and whether the theory or technique enjoys general acceptance within a relevant scientific community. This court recognizes that the factors listed above may or may not be relevant to a determination of the issues before it. Therein lies the flexibility of the gatekeeper responsibility as mandated by the Supreme Court.

As the Fifth Circuit has noted, several prior opinions on admissibility of expert testimony placed undue emphasis on *qualifications* of a particular expert witness over the *reliability* of that expert's proposed testimony and such reflected a "pre-*Daubert*" sensibility. See, *Watkins v. Telsmith*, 121 F. 3d 984, 992 (5th Cir. 1997). In this age of "post-*Daubert*" sensibility, especially as enlightened by the United States Supreme Court's pronouncements in *Kumho*, the trial courts have been instructed to carefully execute the responsibility placed upon the court as a "gatekeeper" of proposed expert testimony.

In response to *Daubert*, and the many cases applying *Daubert* including *Kumho*, Federal Rule of Evidence 702 was amended effective December 1, 2000, by adding three requirements for the admissibility of expert testimony. See *Hodges v. Mack Trucks Inc.*, 474 F.3d 188 (5th Cir. 2006). As amended, Rule 702 now reads:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

The *Daubert* factors remain relevant to the determination of the reliability of

expert testimony under Rule 702, as amended. See *Guy v. Crown Equipment Corp.* 394 F.3d 320, 325 (5th Cir. 2004). In assessing the basis of an expert's proposed testimony, the Fifth Circuit has held that an "expert's testimony [can be] based mainly on his personal observations, professional experience, education and training." *Pipitone v. Biomatrix, Inc.*, 288 F.3d 239, 247 (5th Cir. 2002).

Ultimately, however, the question of whether an expert's testimony is reliable is a fact-specific inquiry. *Burleson v. Tex. Dep't of Criminal Justice*, 393 F.3d 577, 584 (5th Cir. 2004). The proponent of the expert testimony must prove reliability by a preponderance of the evidence. *Moore v. Ashland Chem. Inc.*, 151 F.3d 269, 276 (5th Cir.1998) (en banc). "It is then the district court's responsibility to 'make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.'" *Dart v. Kitchens Bros. Mfg. Co.*, 253 Fed.Appx. 395, 398 (5th Cir. 2007) (quoting *Kumho Tire*, 526 U.S. at 152, 119 S.Ct. 1167).

Therefore, before Dr. Bidez may testify, this court must, at a minimum, determine that (1) she is qualified to offer opinion testimony; (2) she has employed sound methodology in forming her opinions; (3) the data she relied on in forming her opinions is reliable; and, most importantly, (4) the opinion testimony offered by her will assist the trier of fact to understand the evidence or to determine a fact in issue. Of course, the burden of establishing the admissibility of Dr. Bidez's testimony falls on Graves as the proponent of that expert testimony. *Moore v. Ashland Chem., Inc.*, 151 F.3d at 276;

Mathis v. Exxon Corp., 302 F.3d 448, 459-60 (5th Cir. 2002); *Daubert*, 509 U.S. at 592, n. 10.

Finally, if an expert's testimony survives the threshold scrutiny under Rule 702, it is subject to further review under Rule 403. See *Daubert*, 509 U.S. at 595; *Brock v. Caterpillar, Inc.*, 94 F.3d 220, 226 (6th Cir. 1996). "[E]xpert evidence can be both powerful and quite misleading . . . [Rule] 403 . . . exercises more control over experts than over lay witnesses." *Daubert*, 509 U.S. at 595. To this end, an expert opinion's "lack of reliable support may render it more prejudicial than probative, making it inadmissible under [Rule] 403." *Viterbo v. Dow Chem. Co.*, 826 F.2d 420, 422 (5th Cir. 1987).

ANALYSIS

Pursuant to Rule 702 and *Daubert*, this court must make an initial determination as to whether Dr. Bidez is qualified as an expert by knowledge, skill, experience, training, or education to offer an opinion regarding the cause of W.A.G.'s injuries and his occupant kinematics during the rollover sequence. Although Toyota does not directly challenge Dr. Bidez's qualifications to testify as a biomedical engineer or biomedical reconstructionist, Graves argues that they attempt to "muddy the waters" by arguing that Dr. Bidez's testimony regarding the occupant protection system – in particular, the seatbelt in the subject vehicle – is outside her area of expertise because she is not a "seat belt expert". Thus, Graves went into great detail to document Dr. Bidez's qualifications as a biomedical engineer/reconstructionist in the briefing.

Graves's efforts have been roundly criticized by Toyota. Such criticism is unwarranted in light of the importance of an expert's qualifications in this court's determination of reliability of the testimony, whether those qualifications are challenged or not.

Dr. Bidez holds a M.S. and Ph.D. in Biomedical Engineering, as well as a Bachelor of Science in Mechanical Engineering and Biology. Her professional experience includes twenty-four years as a faculty member of the University of Alabama at Birmingham (UAB), which is a National Institute of Health-designated "Carnegie I Research University." In its simplest terms, this designation means that UAB faculty members are held to the highest scientific and ethical standards in the country. Dr. Bidez received tenure in 1993 as an Associate Professor. She presently holds the rank of Professor and Graduate Program Director of the Master of Engineering (MEng) degree track: Advanced Safety Engineering and Management.

Dr. Bidez has conducted sponsored research within her stated field, taught at the undergraduate and graduate level, and actively published in peer reviewed journals in the field of injury prevention and control. Her professional endeavors have focused in two specific areas: (1) injury prevention within the automotive crash environment; and, (2) rehabilitation from maxillofacial trauma and disease. During her academic career at UAB, Dr. Bidez has received more than two million dollars in research funding in her laboratory, which was sponsored through competitive application to the highest level of peer-review organizations (National Institutes of Health (NIH) and Centers for Disease Control (CDC)) as well as various corporations, including Mercedes-Benz.

Within her areas of expertise, Dr. Bidez has contributed to seven books,

published over forty full-length manuscripts in peer-reviewed journals and conference proceedings, issued twelve industrial reports/technical monographs and presented 110 invited lectures throughout the United States and in fifteen foreign countries. Since 1989, Dr. Bidez has served as principal faculty advisor and/or graduate committee member to twenty-nine graduate students, guiding them to the award of a Master's or Ph.D. degree in biomedical and/or mechanical engineering. Currently, Dr. Bidez oversees the graduate education of sixty students in the Master of Engineering graduate program at UAB and serves on two doctoral level graduate committees.

Dr. Bidez has taught classes at the graduate and/or undergraduate level at UAB entitled: "Mechanical Design," "Kinematics and Dynamics of Machinery," "Biomechanics of Injury," "Experimental Biomechanics," "Engineering Ethics," "Introduction to System Safety," "Hazard Analysis," and "Risk Assessment." She has guided sixteen undergraduate mechanical engineering students through their capstone senior design projects, with such project titles as: "Design of a Four Point Restraint System" and "A New Abdominal Insert for the Hybrid III Anthropometric Dummy."

Dr. Bidez possesses extensive practical and educational experience in automotive engineering, restraint design, performance of restraint designs and alternative designs used to help mitigate injury in automotive crashes. She has taught and continues to teach automotive restraint design at the undergraduate and graduate level within the UAB School of Engineering. She has taught recent courses at the UAB campus including a class of UAB Engineering Honors students on the subject of corporate social responsibility in automotive restraint design. She also worked with

Mercedes-Benz for approximately one full year on a joint research project, which dealt specifically with occupant restraint system design and its influence on occupant injury.

Dr. Bidez has been honored numerous times locally, regionally and nationally, including induction as a Fellow into the American Institute for Medical and Biological Engineering, which represents the top 2% of biomedical engineers in the world, as chosen by their peers. She was the first woman to ever be named Engineer of the Year by the Engineering Council of Birmingham, Alabama. She has received numerous other awards and honors related to her work.

Contemporaneous with her full-time academic career at UAB, Dr. Bidez's research interests related to injury prevention and control led her to found two corporations. In 1990, Dr. Bidez and Associates, Inc. (renamed recently as "BioEchoes, Inc.") was incorporated and engaged in biomedical engineering consulting services for the medical, dental and legal fields. Dr. Bidez currently serves as President/CEO of BioEchoes, Inc. In 1994, Dr. Bidez founded BioHorizons, Inc., based on innovations developed in her UAB research laboratory. BioHorizons is engaged in the design, manufacture and distribution of FDA-regulated, biomedical implants, specializing in maxillofacial applications. BioHorizons has more than 125 employees and markets its products in over thirty countries worldwide. Dr. Bidez is one of three inventors on the core design patents for BioHorizons. She has designed, manufactured and placed into the stream of commerce an internationally-regulated product line that affects the safety, health and welfare of patients.

In 1997, Dr. Bidez was recruited to collaborate with a group of automotive

engineers employed by Mercedes-Benz on a twelve-month joint research project, which dealt specifically with occupant restraint system design and its influence on occupant injury. During the course of her work for Mercedes, she traveled to Stuttgart, Germany, where she participated in round table discussions with group leaders of vehicle structure and occupant restraint systems. Dr. Bidez toured Mercedes' test laboratories and was provided personal demonstrations of their state-of-the-art retractor/pretensioner technology. The Mercedes research project focused specifically on occupant restraint system design, including the seat belt and seat cushion design in vehicles that travel off the road and experience a vertical drop during the course of a crash. Dr. Bidez published and presented the results of this work at the 1997 World Congress of the Society of Automotive Engineers, with two Mercedes-Benz engineers. as co-authors.

In 2004, Dr. Bidez conceived, designed, developed and executed a dynamic, sled test methodology for evaluating seat belt geometry and retractor performance in 1998-99 GMC Suburbans. In this research project, Dr. Bidez evaluated the role of belt restraint design, both retractor performance and belt geometry (specifically, belt buckle stalk length and position relative to the seat cushion), on occupant kinematics and the likelihood of catastrophic injury. Dr. Bidez's work included testing of the Suburban belt systems with three sizes of instrumented, Hybrid III crash dummies, routinely used by the auto industry: the 95th percentile male, 5th percentile female and 6 year old child. Dr. Bidez was personally present for the full two weeks of testing, working hands-on in the sled test laboratory to install, remove, disassemble and analyze the Suburban retractors, buckles, webbing and anchorage assemblies. On the basis of the poor

results with the Suburban belt system, Dr. Bidez re-designed the belt restraint system, using a different retractor and modified belt geometry, which resulted in improved ATD kinematics (i.e., less excursion). Two peer-reviewed publications resulted from this body of research, which Dr. Bidez personally presented before the Society of Automotive Engineers at their 2004 World Congress in Detroit, Michigan.

Most recently, Dr. Bidez and certain of her colleagues published a seminal paper in the Annals of Biomedical Engineering, the flagship, archival journal of the Society of Biomedical Engineering, which is entitled: “Occupant Dynamics in Rollover Crashes: Influence of Roof Deformation and Seat Belt Performance on Probable Spinal Column Injury.” Biomechanical engineering is, in its simplest terms, the application of the principles of physics and engineering mechanics to living systems, particularly the human body. Graves points out that Dr. Bidez focuses her professional efforts in the field of injury prevention within workplaces and in the automotive crash environment.

Dr. Bidez does not hold herself out as a “design expert” in the sense that she has unique experience or training in the design process. Graves points out though, that Dr. Bidez does have vast training, knowledge, and experience in analyzing how a particular design attribute may have led to a particular injury – from a biomechanical engineering standpoint, a level of expertise Toyota does not challenge. As Graves points out, although Dr. Bidez does not draw, create, or process alternative designs from a mechanical standpoint, a major part of her experience in biomechanical engineering involves addressing precisely how and why a particular injury occurred and further addressing how a particular alternative design may perform to reduce the risk of injury

from a biomechanical engineering standpoint.

Toyota first argues that Dr. Bidez's opinions regarding the design of the seat belt buckle in the subject vehicle are unsupported by sufficient testing, evaluation or analysis. Dr. Bidez opines that "the occupant protection system utilized by W.A.G. failed to safely restrain him within the 4Runner's occupant survival space during a foreseeable rollover crash." She defined the "occupant protection system," as including: (1) a safety belt system, (2) a body structure that maintains the occupant survival space, and (3) a means for the prevention of lateral head impacts and partial head ejection.

However, Toyota only hones in on Dr. Bidez's opinion that the seat belt system failed to safely restrain W.A.G. due to the fact that "[t]he length of the [driver's seat belt buckle] stalk (approximately 8 inches relative to the seat cushion) allowed for increased head excursion of the belted driver toward the roof" Toyota argues that this opinion should be excluded because: (1) it is based upon a single measurement taken by Dr. Bidez during one of her vehicle inspections; (2) Dr. Bidez has not completed any studies, testing, or work that would support such a conclusion; and, (3) she is not a "seat belt expert."

Graves argues that Toyota focuses only on the single sentence quoted above from Dr. Bidez's thirty-three (33) page report in support of this argument. According to Graves, Dr. Bidez's injury causation analysis related to an entirely different component of the total occupant protection system -- the role of roof performance in injury causation. As Dr Bidez testified:

Q. And what specific role are you playing in this matter?

- A. My role is biomechanical reconstruction, and so I've been asked to analyze the occupant kinematics to determine the mechanism of injury and to assess what role, if any, the roof performance played in injury causation.

Deposition of Martha Bidez at p. 12:15-22.

A careful review of Dr. Bidez's report and deposition shows that her focus in this case is to assess the role of roof performance in injury causation. Notwithstanding, Toyota's contention that Dr. Bidez relied upon a single measurement for her opinions related to the design of the 4Runner seat belt buckle is without merit. In addition to the vehicle inspections conducted in this case, Dr. Bidez conducted a dynamic spin test using a production SUV rotated up to 500 degrees per second (the Graves' crash was estimated at 222 degrees/sec). The purpose of the study was to investigate the vertical head excursion of a belted occupant in a high roll rate scenario as a function of different retractor and seat belt buckle designs. This study, like the one Dr. Bidez conducted and published in 2005, demonstrated that head excursion increased as a function of buckle stalk length. In addition to her physical examination of the vehicle and surrogate study using an exemplar vehicle in this matter, Dr. Bidez relied upon the results of the published studies listed above in forming her opinions regarding the safety belt system in the vehicle driven by W.A.G. Dr. Bidez made reference to these tests in her expert report and provided copies of the testing materials at the time of her deposition in this matter.

Nevertheless, in her deposition testimony, Dr. Bidez explicitly stated that the seat belt performance was not related to W.A.G's mechanism of injury. In fact, Dr. Bidez

stated very early in her deposition (page 12:17-22) that her analysis related to the role of roof performance in injury causation. She never mentioned seat belt performance in the scope of her assignment. Thus, the issue of seat belt performance as it relates to buckle stalk length is not germane to Dr. Bidez's expert opinions as to the mechanism of W.A.G.'s injuries. That being said, there is nothing excludeable about Dr. Bidez's expert opinion as offered. Certainly, if Dr. Bidez were to offer any opinion that in any way relied on buckle stalk length, the court would have to reassess this testimony.

Toyota's final argument to exclude the testimony of Dr. Bidez relates to her opinions on causation of the mechanism of W.A.G.'s injuries and contends that they are incomplete, flawed and unreliable. In her expert report, Dr. Bidez opines that:

As the driver's side impacted the ground during the first $\frac{3}{4}$ roll, the 4Runner's roof crushed into the driver's survival space, imparting a dynamic, compressive force to [W.A.G.'s] head, which exceeded 7000N (1,573 lb) at a rate of 7 mph or greater. This roof deformation was the root cause of [W.A.G.'s] MAIS 5 cervical spine injuries with resultant quadriplegia.

Toyota argues that Dr. Bidez's opinion that the roof crush created additional acceleration forces necessary to meet the threshold for catastrophic injury in this case "is based on nothing more than speculation and conjecture." Graves responds that Toyota's argument is nothing more than a substantive disagreement over the amount and type of force necessary to cause W.A.G.'s catastrophic spinal cord injury.

Specifically, Toyota argues that the substantive conclusions reached by their own experts regarding axial loading or that W.A.G.'s spinal cord injury was caused by his "diving" into the roof of the vehicle when the roof was in contact with the ground are correct, and Dr. Bidez's opinion that roof crush caused W.A.G.'s spinal cord injury is

incorrect. However, Toyota's lengthy argument on this point is tortured at best and completely fails to demonstrate how Dr. Bidez's methodology is incomplete or flawed, or that her expert opinions are unreliable.

Graves responds that in this case, as she has in each and every instance in which she has analyzed biomechanical issues, Dr. Bidez rigorously adhered to the following scientific method of analysis: a. Identify the specific nature of the injuries sustained in the crash; b. Determine the occupant kinematics during the crash, which leads to a determination of the mechanism of injury; and, c. Determine what role, if any, the design of the vehicle and its occupant protection system played in the cause or mitigation of injury.

Graves continues that given her extensive experience with occupant protection systems and structures, and mechanisms of injury, including her detailed analysis of the design standards and performance requirements used by virtually all major automobile manufacturers or available to them, along with her analysis of the subject accident using the universally accepted scientific method, Dr. Bidez opines that the design of the 1995 Toyota 4Runner's occupant protection system, in general, and the roof structure, in particular, was a substantial factor in causing W.A.G's spinal cord injuries and paralysis. Understandably, Toyota's experts disagree, but that disagreement does not make Dr. Bidez's opinions unreliable, only subject to thorough cross-examination.

Indeed, a careful review of Dr. Bidez's expert report and deposition testimony clearly show that she rigorously applied the scientific method of analysis set forth above to the facts of this case. Guided by that analysis and informed by her extensive education, training, skill and experience, she reached the conclusions contained in her

report. The court finds that Dr. Bidez is eminently qualified in the field of biomedical engineering/reconstruction by her extensive knowledge, skill, experience, training, and education; her testimony is based upon sufficient facts and data; her testimony is the product of reliable principles and methods; and Dr. Bidez has rigorously applied the principles and methods reliably to the facts of the case. Her opinions thus amply comply with the requirements of FRE 702, *Daubert* and its progeny.

IT IS THEREFORE ORDERED AND ADJUDGED that the Motion to Exclude Testimony of Martha Bidez **[#131]** filed on behalf of the defendants, Toyota Motor Corporation and Toyota Motor Sales, USA, Inc., is denied.

SO ORDERED AND ADJUDGED this the 3rd day of October, 2011.

s/Keith Starrett
UNITED STATES DISTRICT JUDGE